

CLAIMS:

1. A method of operating a discharge lamp, in particular during the first hours of operation after manufacture of the lamp, in a first, normal mode of operation having a first operating frequency, which is activated when the burning voltage of the lamp is higher than (or equal to) a first limit value U_1 that can be preset, and a second mode of operation with a second, higher operating frequency which is activated when the burning voltage of the lamp reaches (or undershoots) the first limit value U_1 and which is chosen such that the growth of the electrodes, and accordingly the drop in burning voltage caused in particular by the formation of thinner electrode tips, is limited.
2. A method as claimed in claim 1, wherein the first operating frequency lies between approximately 50 and approximately 200 Hz.
3. A method as claimed in claim 1, wherein the lamp current is superimposed with current pulses in the first mode of operation for avoiding unstable arc discharges.
4. A method as claimed in claim 1, wherein the second operating frequency is higher than the first operating frequency by a factor of approximately 2 up to approximately 20.
5. A method as claimed in claim 1, wherein the second operating frequency has a value of between approximately 300 and approximately 1500 Hz for avoiding unstable arc discharges.
6. A method as claimed in claim 1, wherein the first limit value U_1 lies at a voltage which is approximately 10 V higher than a minimum voltage of a lamp driver unit at which said unit can still drive the lamp with its rated power or a desired power.
7. A method as claimed in claim 1, wherein the first limit value U_1 has a hysteresis.

8. A method as claimed in claim 1, with a third mode of operation which is activated when the burning voltage of the lamp reaches (or undershoots) a second limit value U_2 which can be preset and which is lower than the first limit value U_1 , and in which third
5 mode of operation the discharge path between the electrodes is lengthened by a change in at least one operating parameter of the lamp until the burning voltage exceeds (or reaches) the second limit value U_2 or the second and first limit values U_2 , U_1 again.

9. A method as claimed in claim 8, wherein an operating parameter is a third
10 operating frequency which is lower than the second operating frequency by a factor of between approximately 2 and approximately 1000.

10. A method as claimed in claim 8, wherein an operating parameter is a DC
component which is applied to the lamp.

11. A method as claimed in claim 8, wherein the second limit value U_2 lies at a level which is approximately 5 V higher than a minimum voltage of a lamp driver unit at which said unit can still drive the lamp with its rated power or a desired power.

12. A method as claimed in claim 1 or 9, wherein the second and/or third
20 operating frequency is synchronized with the image frequency of a display system.

13. A circuit arrangement for implementing the method as claimed in any one of the preceding claims, with a comparator (14) for comparing the burning voltage with at least
25 one of the two limit values and a generator (15) for generating the operating frequencies of the lamp current in dependence on the output signal of the comparator (14).

14. A lighting unit with a high-pressure gas discharge lamp and with a circuit arrangement as claimed in claim 13.

15. A projection system with a projection display and a lighting unit as claimed in claim 14.

16. A computer program with program code means for implementing the method as claimed in at least one of the claims 1 to 12 when said program runs on a programmable microcomputer or microcontroller.

- 5 17. A circuit arrangement as claimed in claim 13, comprising a microcontroller or microcomputer and a computer program as claimed in claim 16.